

REMARKS

Claims 13 to 26 and 28 to 31 were rejected under 35 U.S.C. 103(a) as being unpatentable over Igarashi (U.S. Patent 5,966,928) in view of Levendis et al. (U.S. Patent 5,253,476). Claim 27 was rejected under 35 U.S.C. 103(a) as being unpatentable over Igarashi in view of Levendis et al. and Khair et al. (U.S. Patent 6,718,757).

Reconsideration of the application in view of the following remarks is respectfully requested.

Rejections under 35 U.S.C. 103(a)

Claims 13 to 26 and 28 to 31 were rejected under 35 U.S.C. 103(a) as being unpatentable over Igarashi (U.S. Patent 5,966,928) in view of Levendis et al. (U.S. Patent 5,253,476).

Igarashi discloses a filter including rectangular filter plates 11 separated from each other by spacers 22. (Fig. 1; col. 1, lines 21 to 30). Filter plates 11 each have a first passage 14 and each of spacers 22 define a second passage 24. (Id.). Exhaust gas containing particulates are introduced into the first passages 14 from an inlet chamber 62 and passed through filter plates 11 into second passages 24, such that particulates of large diameter in the exhaust gas are deposited on the wall surfaces of first passages 14 and dedusted exhaust gas H is discharged through an exhaust outlet pipe 58. (Figs. 1, 2; col. 1, lines 31 to 39 and 58 to 67). After exhaust gas has been passed through the first and second passages 14, 24 for a predetermined period of time, **cleaning air is passed momentarily in a direction reverse to the flow direction of exhaust gas.** (Col. 1, lines 44 to 52). Compressed air is supplied from an air tank S via a nozzle 75 and is jetted into exhaust outlet pipe 58 and through second passages 24. (Col. 2, lines 1 to 14). The air then flows through filter plates 11 into the first passages 14, thereby removing the deposited particulates from the wall surfaces of the first passages 14, and thus regenerating the filter by **reverse cleaning**. (Col. 1, lines 44 to 52; col. 2, lines 15 to 24). The particulates removed from the peripheral wall surfaces of first passages 14 are dropped into a hopper 68 through a particulate discharge surface 13 of filter 1 and are incinerated by heat from an ignition heater 66 provided in hopper 68. (Col. 1, line 52 to 57; col. 2, lines 16 to 26).

Levendis et al. discloses a system 10 including a particulate trap or filter 14 inside a

casing member 12. (Fig. 1; col. 3, lines 25 to 33). Engine exhaust 20 is introduced a first side of filter 14 through a valve 22 so exhaust 20 passes through filter and soot, ash and PAH particulate in exhaust 20 are trapped in filter 14. (Fig. 1; col. 3, lines 58 to 62; col. 5, lines 57 to 65). A compressed air tank 16 is positioned on a second side of filter 14, opposite the first side, and is coupled through a valve 18 to filter 14. (Fig. 1; col. 3, lines 58 to 62). **Air from compressed air tank 16 is pulsed through filter 14 in the opposite direction of exhaust 20** to dislodge the soot and ash entrapped in the filter 14 and force the soot and ash to an electric burner 24 on the first side of filter 14. (Fig. 1; col. 6, lines 10 to 50).

Independent Claim 13

Claim 13 recites “[a] method for operating a filter, the method comprising:

forcibly passing a stream of a fluid through a filter wall of the filter from a raw gas side to a clean gas side of the filter so as to separate out particles and particle constituents from the stream, wherein the particles and particle constituents are collected by the filter wall on the raw gas side; and

performing a regeneration process on the filter during operation of the filter to remove particles from the filter wall and moving particle constituents not removed from the raw gas side of the filter by the regeneration process to a receiving device disposed downstream of at least a portion of the filter-by forcibly passing a stream of fluid from the raw gas side through the filter so that the particle constituents are carried by the fluid to the receiving device.”

It is respectfully submitted that neither Igarashi nor Levendis et al., alone or in combination, discloses or makes obvious “moving particle constituents not removed from the raw gas side of the filter by the regeneration process to a receiving device disposed downstream of at least a portion of the filter-by forcibly passing a stream of fluid *from the raw gas side* through the filter so that the particle constituents are carried by the fluid to the receiving device” as recited in claim 13. The Examiner appears to rely on some combination of Figs. 1 and 2 of Igarashi and Fig. 1 of Levendis et al. as teaching these limitations of claim 13. As discussed above, the only process for removing matter from filter plates 11 in Figs. 1, 2 of Igarashi involves pulsing compressed air from air tank S via nozzle 75 through filter plates 11 to remove the deposited particulates from filter plates 11 and drop the removed particulates into hopper 68.

Thus, in Igarashi, air is forcibly passed from the clean gas side through filter plates 11 to remove the deposited particulates from filter plates 11, **not from the raw gas side** as clearly required by claim 13. Furthermore, Levendis et al. operates in a similar manner as Igarashi. In Levendis et al., as discussed above, air from compressed air tank 16 is pulsed through filter 14 in the opposite direction of exhaust 20 to dislodge the soot and ash entrapped in the filter 14. Thus, in Levendis et al., air is forcibly passed from the clean gas side through filter 14 to remove the soot and ash from filter 14, **not from the raw gas side** as clearly required by claim 13. Because neither Igarashi nor Levendis et al. discloses these feature of claim 13, claim 13 is clearly not unpatentable as obvious in view of any combination of Igarashi and Levendis et al.

Based on the foregoing, withdrawal of the rejection under 35 U.S.C. 102(b) of claim 13 and its dependent claims is respectfully requested.

Independent Claim 19

Claim 19 recites “[a] method for operating a filter including a plurality of filter walls forming a plurality of channels which are closed by a closure wall configured to be partially opened, the method comprising:

forcibly passing a stream of a fluid through the filter walls of the filter from a raw gas side to a clean gas side of the filter so as to separate out particles and particle constituents from the stream, wherein the particles and particle constituents are collected on the raw gas side; and

performing a regeneration process on the filter during operation of the filter to remove particles from the filter wall and disposing of the particle constituents not removed from the raw gas side of the filter by the regeneration process by flowing fluid from the raw gas side to the clean side and forcing the particle constituents through the channels toward the closure wall.”

It is respectfully submitted that neither Igarashi nor Levendis et al., alone or in combination, discloses or makes obvious “disposing of the particle constituents not removed from the raw gas side of the filter by the regeneration process by **flowing fluid from the raw gas side to the clean side and forcing the particle constituents through the channels toward the closure wall**” as recited in claim 19. As similarly discussed with respect to claim 13, in Igarashi, air is forcibly passed from the clean gas side through filter plates 11 to remove the deposited particulates from filter plates 11, **not from the raw gas side** as clearly required by claim 19.

Also, in Levendis et al., air is forcibly passed from the clean gas side through filter 14 to remove the soot and ash from filter 14, **not from the raw gas side** as clearly required by claim 19.

Furthermore, it is respectfully submitted that neither Igarashi nor Levendis et al., alone or in combination, discloses or makes obvious the “disposing” of claim 19 because particle constituents are not forced “**toward a closure wall**” that closes a plurality of channel as recited in claim 19. It is also respectfully submitted that the Examiner is in clear error for failing to address these limitations of claim 19.

Based on the foregoing, withdrawal of the rejection under 35 U.S.C. 102(b) of claim 19 is respectfully requested.

Independent Claim 29

Claim 29 recites “[a] filter comprising:

a filter wall dividing a clean gas side and a raw gas side of the filter and configured to separate out particles and particle constituents from a stream of fluid passing flowing from the raw gas side through the filter wall and to enable the particles to be removed in a regeneration process; and

a receiving device located downstream of at least a portion of the filter wall configured to receive a flow of the fluid from the raw gas side of the filter therethrough and to receive and hold the particle constituents, the filter wall and receiving device being arranged such that the stream of fluid passing through the filter wall from the raw gas side forces the particle constituents into the receiving device.”

It is respectfully submitted that neither Igarashi nor Levendis et al., alone or in combination, discloses or makes obvious “a receiving device located downstream of at least a portion of the filter wall configured to receive a flow of the fluid from the raw gas side of the filter therethrough and to receive and hold the particle constituents, the filter wall and receiving device being arranged such that the stream of fluid passing through the filter wall from the raw gas side forces the particle constituents into the receiving device” as recited in claim 29. The Examiner alleges that some combination of the arrangement of hopper 68 of Igarashi and electric burner 24 of Levendis et al. corresponds to the “receiving device” of claim 29. As similarly discussed above, Igarashi involves pulsing compressed air from air tank S via nozzle 75 through

filter plates 11 to remove the deposited particulates from filter plates 11 and drop the removed particulates into hopper 68. Thus, hopper 68 and filter plates 11 in Igarashi are not arranged such that a stream of fluid passing through filter plates 11 from a raw gas side of filter plates 11 forces deposited particulates in filter plates 11 into hopper 68. Furthermore, the device of Levendis et al. is configured in a similar manner as Igarashi. In Levendis et al., as discussed above, air from compressed air tank 16 is pulsed through filter 14 in the opposite direction of exhaust 20 to dislodge the soot and ash entrapped in the filter 14. Thus, electric burner 24 and filter 14 in Levendis et al. are not arranged such that a stream of fluid passing through filter 14 from a raw gas side of filter 14 forces soot and ash in filter 14 into electric burner 24. Because neither Igarashi nor Levendis et al. discloses this arrangement of claim 29, claim 29 is clearly not unpatentable as obvious in view of any combination of Igarashi and Levendis et al.

Based on the foregoing, withdrawal of the rejection under 35 U.S.C. 102(b) of claim 29 and its dependent claim is respectfully requested.

Independent Claim 31

Claim 31 recites “[a] filter comprising:

a filter wall dividing a clean gas side and a raw gas side of the filter and configured to separate out particles and particle constituents from a stream of fluid passing through the filter wall and to enable the particles to be removed in a regeneration process, wherein the filter wall forms a plurality of channels on the raw gas side, each channel being closed by a closure wall located downstream of at least a portion of the filter wall, the closure wall configured to be at least partially openable so as to enable disposal of the particle constituents.”

It is respectfully submitted that neither Igarashi nor Levendis et al., alone or in combination, discloses or makes obvious “each channel being closed by a closure wall located downstream of at least a portion of the filter wall, the closure wall configured to be at least partially openable so as to enable disposal of the particle constituents” as recited in claim 31. It is also respectfully submitted that the Examiner is in clear error for failing to address these limitations of claim 31.

Based on the foregoing, withdrawal of the rejection under 35 U.S.C. 102(b) of claim 31 is respectfully requested.

Rejection under 35 U.S.C. 103(a)

Claim 27 was rejected under 35 U.S.C. 103(a) as being unpatentable over Igarashi in view of Levendis et al. and Khair et al.

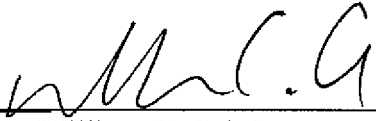
Claim 27 is dependent on claim 13. In view of the above arguments with respect to claim 13, withdrawal of the rejection under 35 U.S.C. 103(a) of claim 27 is respectfully requested.

CONCLUSION

The present application is respectfully submitted as being in condition for allowance and applicants respectfully request such action.

Respectfully submitted,

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